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FOR EDITORIAL USE ONLY**Maximizing the Scientific Return of Low Cost Planetary Missions Using Solar Electric Propulsion.**

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After many years of development solar electric propulsion is now a practical low cost alternative for many planetary missions. The ion thrusters and power processing units are now undergoing extended operational tests at NASA Lewis Research Center and a space flight in low earth orbit is being planned for the first flight of these thrusters. Moreover, a large commercial market is considering the use of these thrusters. Thus their availability and continued improvement seem assured.

In response to the recent Discovery AO we and a number of colleagues have examined the scientific return from a mission to map the moon and then rendezvous with a small body. We have named this mission after Diana, the Roman goddess of the moon and the hunt. In planning this mission we found that solar electric propulsion was quite affordable under the Discovery cost guidelines, that many targets could be reached more rapidly with solar electric propulsion than chemical propulsion, that a large number of planetary bodies were accessible with modest propulsion systems, and that such missions were quite adaptable with generous launch windows which minimized mission risks. Moreover, solar electric propulsion is ideally suited for large payloads requiring a large amount of power.

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